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ABSTRACT

A study was conducted to determine whether extensive vocabularies increase students' notetaking skills. The subjects, 45 volunteer college seniors involved in elementary and secondary student teaching, were given both the Nelson-Denny Reading Test (Form A) and the Peabody Picture Vocabulary Test (revised), as well as the general information subtest of the Peabody Individual Achievement Test. After testing, subjects were read a three-page essay and told to take notes in anticipation of a test. They were later given 25 multiple choice questions about the essay, and their responses were machine scored. Results indicated that students' ability to integrate new information with previous knowledge or existing schemata was more likely to help them learn and retain information than were their vocabularies or reading skills. Further research on what particular aspects of notetaking aid future recall and more long-term studies of the encoding/retrieval dilemma are indicated. (Tables of results and 26 references are included.) (AEW)

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THE EDUCATIONAL PSYCHOLOGY OF NOTE TAKING:
EFFECTS OF PRIOR WORD/WORLD KNOWLEDGE

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Running Head: Note Taking

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Abstract

Although note-taking is probably the single most engaged in activity by college students, research on it is sparse, results are inconsistent. The present study reviews the salient literature and reviews the results of one experiment conducted relative to two specific variables.

Note-taking is probably the most frequently used mathemagenic (Rothkopf, 1970) aid utilized by high school and college students. Early research (Corey, 1935, Crawford, 1925, Greene, 1934, McClendon, 1958, Palmatier, 1968) focused on the teaching of note-taking, while more recent research has taken a more empirical approach. DiVesta and Gray (1972) postulated that note-taking must function in an either/or fashion in terms of encoding and retrieval. The encoding stance suggests that simply taking notes enhances performance. Retrieval, on the other hand, facilitates review, organization, reconstruction and later, test-taking. Richards and Friedman (1978) tested this dichotomy and suggested that with external storage, learners may be either better able to rehearse material or reconstruct previously learned matter.

Peper and Mayer (1978) cast note-taking in a different light. They suggest that an "assimilative encoding process" is operative. This process subsumes three aspects - first, material must be received; second, an important set of prior experiences/knowledge is available; and third, that learners actively process those prior experiences during learning. Peper and Meyer cite "elaborative" mechanisms (Klemt and Anderson, 1973, Lynch and Rohwer, 1971, and Royer and Kulhavy, 1973) which appear to foster the process of actively integrating old or prior knowledge with material. Ausubel's (1968) statement that "the most important single factor influencing learning is what the learner already knows" ties in closely with this view, particularly condition two of the assimilative process. Bretzing

and Kulhavy (1981) in their study of note-taking tried to relate notes taken to the style and interpretations of the target information. They felt that the "formality" of to-be-learned prose was a crucial variable. They defined it as "the degree to which new information can be made to relate to community values of prior knowledge." (p. 242) In effect, some information is well known to the general public. Other data is or are accessible only to highly specialized scientists. The formality of to-be-learned material is thus a highly important area of interest.

Glover, Zimmer, Filbeck and Flake (1980) attempted to train students to underline correctly utilizing positive reinforcement. Postulating that students could better learn to identify the semantic base of prose materials, Glover and his colleagues found that subjects did increase "on-target" note taking abilities. The actual formal assessment of note-taking skills and abilities was later explored by Glover and Shaughnessy (1982). Although systematic criteria were developed for the evaluation of student's notes, the criteria did not prove effective in the prediction of student's grades in educational psychology courses.

Einstein, Morris. and Smith (1985) conducted two experiments and found that the better students appeared to be engaging in greater integrative processing. Specifically students were "relating the ideas to one another and/or integrating the information with one's existing knowledge" (p. 523). Other research (Howe, 1974; Weener, 1974) also seem to support the view that note-taking improves one's ability to again, integrate prior

knowledge with new information (Sternberg, 1985).

Recent theorizing on "knowledge acquisition" and the importance of both general knowledge and word or vocabulary knowledge on academic and real world success is germane to the process of note-taking. A student with a broad vocabulary does not have to waste time listing unfamiliar terms, and writing and defining constructs or words. These introductory psychology or sociology students may already be familiar with the terms id, ego, superego, and norms, folkways and mores, respectively. Their attention is not disrupted or divided by the mention of these words during lectures. Further, a well-read student with broad general knowledge knows where Versailles is located, who Metternich was and the importance of valence. The "high word/world knowledge" students will be able to concentrate more fully on the lecture and possibly assimilate material more readily. This word/world knowledge may have stemmed from extensive reading. It seems plausible therefore to assume greater reading comprehension and a superior reading rate on the part of better note-takers.

Carrier and Titus (1979) in a review of the literature explored individual differences in note-taking. They indicate short-term memory as one area of concern and cite Berliner's (1971, 1972) work as supportive evidence. By measuring word knowledge, general information, reading rate, and comprehension further information may be discerned as to what factors are of importance in note taking or are predictive of success in note taking. The present study attempts to determine the importance

of several variables in terms of note-taking ability. By holding both word knowledge and general information constant, and by controlling for reading rate and comprehension, further information may be discerned as to what factors are of importance in note-taking or are predictive of success in note taking.

Method

Subjects

Subjects were 45 volunteer college seniors involved in elementary and secondary student teaching. They were tested in a large college classroom under optimal conditions.

Procedure

All subjects were given the Nelson-Denney Reading Test (Form A, Nelson Denny, 1973) under standardized instructions. This scale provided a measure of reading rate and reading comprehension. They were also administered the Peabody Picture Vocabulary Test-Revised (PPVT) (Dunn, 1972) via slide format in a group setting. This scale provided a measure of word knowledge or vocabulary. Fifteen seconds were allowed for each response. The general information sub-test of the Peabody Individual Achievement Test (PIAT) (Dunn and Markwardt, 19) was also administered, again, in group format and was later scored according to standards listed in the manual. Following testing, a short, three-page essay on heredity and environment was read aloud to subjects. Subjects were instructed to take notes and they were told that they would be tested. They were later given 25 multiple choice questions on the essay. The responses were machine scored.

Results

A stepwise multiple regression procedure was used to determine which variables accounted for the variance in the model. This statistical procedure sequentially adds predictor variables to a model and then compares the error values associated with each model to determine which model serves as the "best" model. The results of this study indicate that the PIAT is the most significant predictor of scores on the post-essay test, $F(1,23) = 2.068$, $p > .05$ (see Table 1). This is not a significant F value. Therefore, the addition of any of the other variables does not significantly reduce the error associated with the model. The model is significant, $F(1,24) = 11.55$, $p < .05$. This indicates that scores on the PIAT do significantly account for variance among scores on the post-essay test.

Insert Table 1 about here

Discussion

The results indicate that in a note-taking situation, general knowledge may be the best predictor of future success during retrieval. It appears that the subjects' ability to integrate to-be-learned information with prior knowledge may be more predictive of the amount of information learned in a novel situation, than vocabulary or reading skills. Future research needs to be done using a control group and other measures to determine what particular aspects of note-taking may aid future

recall in new learning situations. Also, more long-term studies must be conducted to clarify the encoding/retrieval dilemma.

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Table 1

Mean Scores on the Various tests

Variable	Mean	Standard Deviation
PPVT	44.27	9.72
PIAT	18.64	5.17
Reading Rate	252.33	73.75
Comprehension	24.89	6.16
Essay	13.28	3.43

Predictor Variables in the Order of Appearance in the Model

Variable	Model F	Error F	R ²
PIAT	11.55*	2.068	.32
PPVT	7.07*	**	.38
Comprehension	5.18*	**	.43
Reading Rate	3.75*	**	.42

* Significant at $p < .05$.

** Not listed because the statistical procedure requires that one stop at the first non-significant comparison.